

---

# Collaborating to enhance patient education and recovery\*

By Michele Klein-Fedyshin, MSLS  
kleinfm@upmc.edu  
Manager of Library Services, UPMC Shadyside

Michelle L. Burda, MLS  
burdaml@upmc.edu  
Consumer Health Librarian, UPMC Shadyside

Health Sciences Library System  
University of Pittsburgh  
5230 Centre Avenue  
Pittsburgh, Pennsylvania 15232

Barbara A. Epstein, MSLS  
bepstein@pitt.edu  
Director

Health Sciences Library System  
University of Pittsburgh  
Falk Library of the Health Sciences  
200 Scaife Hall  
Pittsburgh, Pennsylvania 15261

Barbara Lawrence, RN, MEd  
blawrence@mail.magee.edu  
Nurse Educator

Magee-Women's Hospital of the University of Pittsburgh Medical Center  
300 Halket Street  
Pittsburgh, Pennsylvania 15213

---

**Objective:** The paper describes a collaborative project between librarians and health care staff to enhance patient recovery by distributing educational videos and evaluating the acceptability of this "information intervention."

**Background:** On inpatient units, nurses experience decreased time to teach patients. Text handouts do not include multimedia information, and reading levels may limit comprehension. Because the postoperative period is not the optimal time for patient instruction, another format and opportunity for postsurgical instruction was needed.

**Methods:** Nurses, therapists, educators, and librarians partnered to select a video designed for home viewing by discharged patients. It was added to the existing text-based educational program for coronary patients. An evaluation component was incorporated into this collaboration.

**Results:** The library's role extended to all aspects of the program's implementation and management. The library's circulation system was used to coordinate borrowing with minimal loss. Ongoing preparation of the video materials for distribution and return remained a library function, and the evaluation component showed patients' positive reception of the video.

**Discussion:** Patients received a greater amount of information to enhance self-care during the recovery period without consuming more

nursing time. Video circulation and reuse enhanced cost effectiveness of the program, and patients benefited from the library's resources.

## INTRODUCTION

Increasing costs and insurance pressures have resulted in shorter inpatient lengths of stay (LOS) and earlier post-surgery discharges. In Pennsylvania from 1995 to 2000, the LOS for coronary artery bypass surgeries (CABG) has decreased by 12.3% [1]. With shorter stays, discharged patients are sicker, are in greater need of home care, and have a higher risk of complications [2].

Most of the responsibility for follow-up home care has shifted to families. Caregivers and family members are integral parts of the recovery process, yet family caregivers may experience considerable anxiety and fear about caring for a loved one so soon after surgery. In one study, spouses ranked their needs for information higher than patients ranked their needs [3]. Patients were generally happy to go home, while caregivers were nervous about their abilities to care for a postoperative patient.

A successful recovery must overcome a variety of challenges. One study of cardiac patients in early recovery found that all but one of the eighty-two patients experienced problems during the first six months after discharge [4]. These varied from emotional (e.g., depression, anxiety), to physical, to convalescence issues (e.g., incisions), and others. The complexities and complications of post-discharge care precipitates patients' need for additional information.

Existing standards of the American Medical Association and the Joint Commission for the Accreditation of Healthcare Organizations mandate patient education that addresses the needs of both the patient and caregiver [5, 6]. Yet, just as patients and families are in need of clear and understandable information about the posthospital recovery period, nurses on busy inpatient units have a decreased amount of time to impart such information [7]. Nationwide, patient satisfaction with discharge instructions is low [8], and a majority of caregivers did not feel prepared for the responsibility in a cardiac surgery study [9]. Pamphlets or photocopied handouts, along with hurried verbal instructions, are often the only information that is given to patients and families. Postoperative patients may be groggy, in pain, or too weak to focus on learning, while caregivers may feel distracted and overwhelmed.

Patients or caregivers with poor reading skills often have difficulty understanding printed postoperative instructions. In addition, they may not retain verbal information, especially when under stress. One study found that patients forget 80% of what clinicians tell

them, and almost 50% of the remembered data is recalled incorrectly [10]. Patients and families need to be able to refer back to information, review salient points repeatedly, and have a tangible, take-away product. The more caregivers understand postoperative care, the greater the positive impact they can have on patient recovery.

This paper describes a collaborative project initiated by the Process Improvement Team of the University of Pittsburgh Medical Center (UPMC), whose goal was to improve patient education. Health sciences librarians, nursing staff, rehabilitation therapists, and patient education committee members considered the impact of providing an educational video designed for home viewing to patients discharged after coronary artery bypass surgery. The goal of this project was to enhance patients' participation in recovery through understanding of and compliance with therapeutic regimens. A secondary objective was to maximize the use of the staff educator's time. The library's goals were to promote use of resources, promote recognition of their information expertise, and collaborate in a valued institutional project.

## BACKGROUND

UPMC Shadyside is a 486-bed, tertiary care hospital offering primary care; physician, nursing, and allied health education; and a broad range of specialties that include cardiology, oncology, geriatrics, and orthopedics. Among its facilities is the Hopwood Library: A Health Resource Center for Patients and Families, whose librarians regularly interact with patients and families. Though located in the hospital, this library and its staff are part of the Health Sciences Library System of the University of Pittsburgh.

All inpatients at UPMC Shadyside are given written discharge instructions. In addition, patient education brochures are on the hospital's Website and are available in print on patient units and in the Hopwood Library. Because hospital-based verbal and print postoperative education often targets patients who are too sick to learn, the team proposed providing information in a video format that patients and families could view at home. The video format could be especially helpful to patients with low health literacy, defined as the decreased "ability to read, understand and act on health information" [11].

Research has shown that information provided on audiotapes improves physical functioning and positively impacts patient recovery after cardiac surgery [12]. Further justification came from a study demonstrating that providing videotaped information to post-cardiac surgery patients prior to discharge increased dietary and exercise compliance [13]. The authors of that study postulated that the information

\* Preliminary findings were presented as a poster at MLA '03, the 103rd annual meeting of the Medical Library Association, in May 2003.

provided on the video helped patients feel more confident about their ability to adhere consistently to the recommended low-fat diet. At the one-month follow-up, patients with the video measured significantly lower cholesterol and saturated fat consumption compared to the control group. Seeing this potential benefit to patients and with unreimbursed patient education costs by nurses estimated to be in the tens of millions of dollars annually in one large center [14], the Process Improvement Team targeted patient education. Collaboration to improve patient education has shown some success and increased staff acceptance for this approach; thus the library joined the team [15, 16].

## METHODS

When the hospital's Process Improvement Team selected patient education as a target, the existing educational materials for post-cardiac surgery patients consisted of a printed information booklet and discharge instructions. Nurses, rehabilitation therapists, patient educators, and librarians partnered to select a high-quality video designed for independent, home viewing by discharged CABG patients. This group previewed the video and made recommendations about splitting the content to better represent pre- and postoperative learning needs. Working with the vendor, the library staff solicited a cover design reflecting the library's color scheme, worked on the wording for the trailer, and interfaced with the Process Improvement Team during the design process. The project was presented and approved at a divisional meeting of cardiothoracic surgeons and cardiologists.

Because the at-home recovery period for cardiac surgery patients can take weeks, the team felt that the window of opportunity for providing information was long enough that patients and families would benefit from being able to take the video home and watch it several times during their recovery periods. The team evaluated the outcome of this effort through a follow-up survey.

The selected video was *Recovering From Heart Surgery Step By Step*, produced and distributed by Milner-Fenwick, a commercial vendor in Timonium, Maryland. The cover design was customized to include the UPMC logo and the library's color scheme. The sentence, "This program is presented courtesy of UPMC Shadyside," opens the video. The thirty-one-minute video presented guidelines for different stages of recovery from heart surgery—including setting up routines during the first days at home, incision care, recovery steps between two and six weeks after surgery—and discussed how to reduce risk factors for heart disease. Guidelines for diet and exercise were also included. By employing graphics and animation, the video demonstrated self-care and progressive return to normal functioning.

Effective implementation of this project required a partnership between library and clinical staff. A cardiac nurse or rehabilitation therapist evaluated the appropriateness of the video for each patient and com-

pleted an application for library services for them. A library staff member then registered the patient in the library's automated circulation system and checked out the video to the patient with a self-addressed, postmarked envelope for its return. The postage was charged to the library's account only if the envelope was mailed. A clinical staff member picked up the video and return envelope for delivery to the patient with other discharge materials. Because the library managed circulation of the video through its existing automated system, the clinical staff did not have to spend time on this task. Of the 750 videos that circulated, only 10 videos were not returned, for a loss rate of 1.3%.

The project is funded through the library's operating budget, though an earlier pilot project to demonstrate feasibility was funded by hospital administration. Initial expenses included \$1,850 for purchase of 125 copies of the video from the producer, 400 return envelopes at \$1.00 each, and postage paid labels of \$3.50 each. Videos and bubble envelopes are recirculated as they are returned. The cost per use is estimated at \$6.70 per loan and decreases as materials are reused. Thus, the program does not present a continuing drain on the library budget.

An evaluation form was mailed out in March 2003 to all patients who had borrowed the video during the first year. The evaluation asked questions about viewing habits and specific areas of knowledge and whether and how viewing the video had changed patients' attitudes or behavior. The UPMC Shadyside Informatics Department analyzed the data. Evaluation forms are currently distributed with the video, so compilation of data can occur sooner and results can be compared over time.

## RESULTS

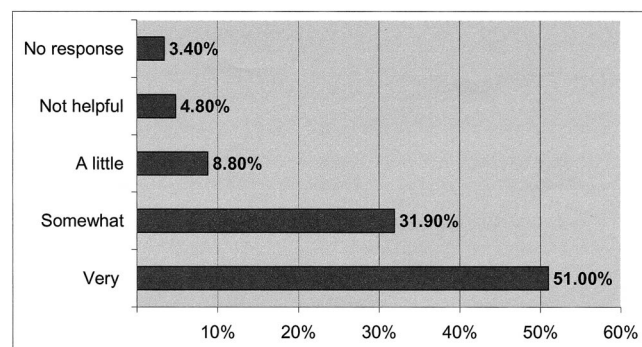
Patient education typically ceases when patients leave the hospital, although the need for information may not. A total of 396 evaluation forms were mailed, with 147 returned for a response rate of 37%, which is a low normal response rate. Nearly all (96%) of the respondents watched the video at least once, with many reporting that they viewed it several times. Of those who watched the video, 92% reported that viewing the video was helpful in their recovery, at least to some degree (Figure 1).

Because patients and caregivers watched the video at home, patients were able to gain additional knowledge on their own, without individualized instruction from nursing staff. In addition, patients and families could watch the video as many times as they wished. The evaluation revealed that 84% felt that the video answered questions that they otherwise would have called their health care provider to ask. This time-saving feature of the program resonated with staff as well as families, and video usage was made a formal part of the discharge planning process. Staff acceptance perpetuated the program, and early staff involvement benefited both patients and employees.



**Figure 1**

Do you feel the video was helpful in your recovery?



By utilizing a multimedia format with less technical language, the video positively affected patients' post-operative knowledge and self-care abilities. This impact is evidenced in that 88% of respondents said they either acquired new knowledge or reinforced existing knowledge after viewing the video (Figure 2). When asked in what areas the video increased their knowledge, respondents reported better understanding of activity changes (76%) and increased knowledge of appropriate diet (66%) and incision care (61%). They also reported improved comprehension of appropriate medication usage and knowledge of when to call their health care providers (Figure 3). Patients sometimes mentioned specific self-care behavior changes, such as: "I was miserable with swollen legs for a week, then I watched the video. It said to use double pillows to elevate the legs while sleeping. The next night showed a difference."

Patients applied information gained by watching the video to change their behavior and positively influence their physical recovery, while others found the psychological reassurance benefited their emotional recovery.

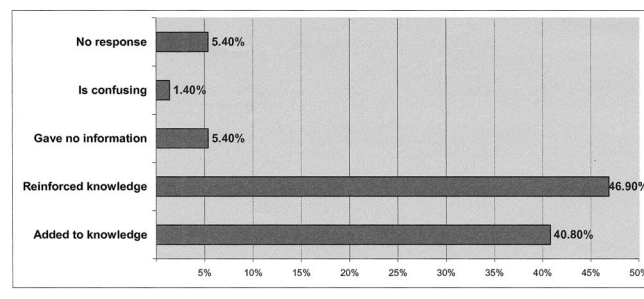
## DISCUSSION

In hospitals, nurses have a primary teaching role, and they are seen as a focal point for information distribution to patients. If librarians furnish information in a variety of formats, it can enhance communication and compliance and help avoid malpractice suits. Among the top-10 reasons physicians are sued for malpractice is weak, undocumented patient education [17]. One study quantified this and found that 71% of all claims were related to breakdowns in doctor-patient communication, and 26% of these claimed that information was poorly delivered [18]. Verbal information is only useful if it is recalled, and studies have demonstrated that patients actually remember very little [10].

Even when written instructions are given, comprehension may be limited. Patients scored an average of

**Figure 2**

Do you feel this video...

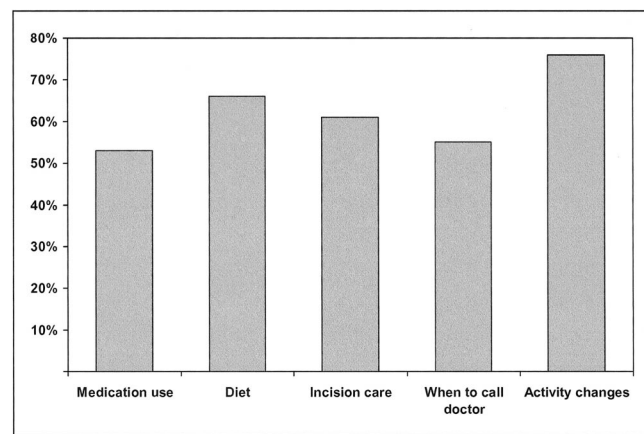


43% on 1 assessment of their level of knowledge about self-care after they received written discharge instructions about joint replacement [19]. A recent study on the knowledge benefit from a variety of printed patient education materials for stroke patients found that they had minimal impact [20]. This finding implies that an additional form of reinforcement for the information is needed. A study of adding cartoon illustrations to improve the comprehension of emergency department instructions found patients were more likely to read illustrated instructions (98% vs. 79%), more compliant with their wound care using illustrated instructions (77% vs. 54%), and more likely to answer care questions accurately after reading illustrated instructions (46% vs. 6%) [21]. The results suggest that the use of graphics enhances the knowledge gained. The audiovisual format can increase understanding and overcome educational barriers such as low literacy.

In a study comparing a booklet alone with a video program plus the booklet for increasing patient knowledge about spine treatment options, the video component was more effective [22]. In that randomized study, the video component had an incremental benefit on knowledge gains. For some patients, the video

**Figure 3**

Helpfulness of video by topic



enhances personal involvement in their care. Taken together with the results from the study in this paper, the randomized study supports an added benefit from a video or graphic element for patient education.

A review of the efficacy of videos in patient education using twenty-five studies found the video format particularly effective in decreasing patients' anxiety and pain while increasing their short-term knowledge and coping ability [23]. Patients in this study might have been more able to cope using the information from the video, as suggested by their decreased reliance on follow-up calls to their clinicians.

Of course, many factors contribute to a successful recovery period. A limitation of the study in this paper is that it is impossible to directly connect the information gained to the surgical outcomes.

### Practice implications

The first challenge of an educational intervention is having people use it. The UPMC video program succeeded decisively at this. That 96% of the survey respondents elected to view the video demonstrates the importance of the graphic medium. Another component that may have promoted use of the video is its deployment in a home environment where patients have the time and caregivers may be present to view the educational materials. The implications from these results are that institutions may preferentially consider an audiovisual medium for patient education as well as extension of postoperative education into the home. This intervention helps patients adjust and recover in their own homes and at their own pace.

The video used in this study may have decreased anxiety by explaining expected problems in a normal recovery, such as initial shortness of breath. Patients who know that it is not pathological to feel short of breath are more confident in initiating new activities. This knowledge can increase their sense of control and may mitigate post-operative depression. Knowledge can also increase compliance [24], and the results from this study showed that 73% of responders increased their understanding of activity changes. Actual commentary from patients included: "The [hospital nurse's] instructions and the video got me through the recovery period" and "We found the video to be very helpful and reassuring." Patients' knowledge gains and psychological reassurance may facilitate their progression from hospital to home to independent self-care.

Patients and family caregivers may feel a sense of abandonment when transitioning to home care. The jacket of our video carries our institutional logo and a trailer on the video states, "This program is presented courtesy of UPMC Shadyside, a hospital of the University of Pittsburgh Medical Center," creating a positive association between the institution and the patients' experience. When viewing the video, patients can still feel they are connected to the hospital and are participants in the process of their education.

### CONCLUSION

This project was possible because of successful collaboration between the library staff and clinicians. The project demonstrated how library staff facilitated selection, distribution, and control of educational resources, saving staff time. Patients received educational information without requiring excessive nursing time, and circulation and reuse of the videos proved to be a cost effective approach to patient education.

Recovery from surgery is both a physical and psychological progression. It can be an especially difficult process for CABG patients, who are still very sick when discharged due to shorter lengths of stay in the hospital. The findings from this study demonstrate that educational information in a multimedia format is used and appreciated by patients and that it can be delivered in a cost-effective manner. Team projects driven by the clinical staff can be a vehicle for library participation in the patient education process.

### ACKNOWLEDGMENTS

We gratefully acknowledge the assistance of Bill Mook, Marilyn Ridenour, and Renee McElnerly from the UPMC Shadyside Informatics Department, as well as library specialist Deborah Downey and the Resource Management Staff of the University of Pittsburgh Health Sciences Library System. We appreciate funding from Tami Merryman, UPMC Shadyside Administration, who provided the initial impetus for using videos for discharge education.

### REFERENCES

1. PENNSYLVANIA HEALTH CARE COST CONTAINMENT COUNCIL. Pennsylvania's guide to coronary artery bypass graft (CABG) surgery, 2000. [Web document]. 2000. [cited 8 Apr 2005]. <<http://www.phc4.org/reports/cabg/00/default.htm>>.
2. LeCLERC CM, WELLS DL, CRAIG D, WILSON JL. Falling short of the mark: tales of life after hospital discharge. *Clin Nurs Res* 2002 Aug;11(3):242-63.
3. DAVIES N. Carers' opinions and emotional responses following cardiac surgery; cardiac rehabilitation implications for critical care nurses. *Intensive Crit Care Nurs* 2000 Apr; 16(2):66-75.
4. JAARSMA T, KASTERMANS M, DASSEN T, PHILIPSEN H. Problems of cardiac patients in early recovery. *J Adv Nurs* 1995 Jan;21(1):21-7.
5. COUNCIL ON SCIENTIFIC AFFAIRS (A-96). Evidence-based principles of discharge and discharge criteria (report 4). Chicago, IL: American Medical Association, 1996. [rev. 23 Nov 2004; cited 8 Apr 2005]. <<http://www.ama-assn.org/ama/pub/category/13663.html>>.
6. JOINT COMMISSION ON ACCREDITATION OF HEALTHCARE ORGANIZATIONS. Comprehensive accreditation manual for health care networks 2003-2004. Oakbrook Terrace, IL: The Commission, 2002:ED11-ED18.
7. WHITE JP, ARMSTRONG H, ARMSTRONG P, BOURGEOULT I, CHAINIERE J, MYKHALOVSKIY E. The impact of managed care on nurses' workplace learning and teaching. *Nurs Inq* 2000 Jun;7(2):74-80.
8. CLARK, PA, DRAIN M, GESELL SB, MYLOD DM, KALDEN-

- BERG DO, HAMILTON J. Patient perceptions of quality in discharge instructions. *Patient Educ Couns*: In press.
9. LESKE JS, PELCZYNSKI SA. Caregiver satisfaction with preparation for discharge in a decreased-length-of-stay cardiac surgery program. *J Cardiovasc Nurs* 1999 Oct;14(1):35-43.
  10. KESSELS RP. Patients' memory for medical information. *J R Soc Med* 2003 May;96(5):219-22.
  11. Briefings on patient safety, special issue. *HCPPro*, 2002 Mar;1.
  12. MOORE SM. The effects of a discharge information intervention on recovery outcomes following coronary artery bypass surgery. *Int J Nurs Stud* 1996 Apr;33(2):181-9.
  13. MAHLER HI, KULIK JA, TARAZI RY. Effects of a video information intervention at discharge on diet and exercise compliance after coronary bypass surgery. *J Cardiopulm Rehabil* 1999 May-Jun;19(3):170-7.
  14. WILLIAMS AR, MCDUGALL JC, BRUGGEMAN SK, ERWIN PJ, KROSHUS ME, NAESSENS JM. Estimation of unreimbursed patient education costs at a large group practice. *J Contin Educ Health Prof* 2004 Winter;24(1):12-9.
  15. TEAMWORKS. Teams get patient education just right. *Joint Commission Benchmark* 2001 3(11):8-9.
  16. LEISNER BA, SCHROEDER LM, GILICK JJ, MILLER SE. Using a process action team to improve patient education. *J Healthc Qual* 1999 Mar-Apr;21(2): 4-10,18,48.
  17. KARP D. The top ten reasons physicians are sued for malpractice. *Alaska Med* 2000 Apr-Jun;42(2):48-9.
  18. BECKMAN HB, MARKAKIS KM, SUCHMAN AL, FRANKEL RM. The doctor-patient relationship and malpractice. lessons from plaintiff depositions. *Arch Intern Med* 1994 Jun 27; 154(12):1365-70.
  19. WILSON FL, MCLEMORE R. Patient literacy levels: a consideration when designing patient education programs. *Rehabil Nurs* 1997 Nov-Dec;22(6):311-7.
  20. MAZOR KM, BILLINGS-GAGLIARDI S. Does reading about stroke increase stroke knowledge? the impact of different print materials. *Patient Educ Couns* 2003 Nov;51(3):207-15.
  21. DELP C, JONES J. Communicating information to patients: the use of cartoon illustrations to improve comprehension of instructions. *Acad Emerg Med* 1996 Mar;3(3):264-70.
  22. PHELAN EA, DEYO RA, CHERKIN DC, WEINSTEIN JN, CIOL MA, KREUTER W, HOWE JF. Helping patients decide about back surgery: a randomized trial of an interactive video program. *Spine* 2001 Jan 15;26(2):206-11.
  23. GAGLIANO ME. A literature review on the efficacy of video in patient education. *J Med Educ* 1988 Oct;63(10):785-92.
  24. ASHURST IDE B, DOBBIE H. A randomized controlled trial of an educational intervention to improve phosphate levels in hemodialysis patients. *J Ren Nutr* 2003 Oct;13(4):267-74.

*Received December 2004; accepted April 2005*